

N^o 62

An Inaugural
Essay on
Sensation and Motion

By John Cabaniss of Virg^a
passed March 29th 1816
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Sensation & Motion

When I reflect on the obscurity of the subject on which I am about to enter, the criticising world to whose inspection it is to be subjected, and my incapability to do justice to a subject like this, I am on the verge of recoiling from the task, and abandon the pursuit, which alone can place me on an equality with the medical world. But in conformity with the laws of this institution, which make it necessary that I should become an author, I attempt it not without knowing the errors of judgment, to which I with every other person am liable.

This subject, like most metaphysical subjects has caused great controversy among medical men; yet they have left us

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like a blind man searching for a feather on a windy day. Clouds of ignorance still intercept our view and we are lured from the pleasing paths of truths by the art of reasoning into the subtle mazes of ingenuity.

The word Sensation is made use of to express a sense of pleasure, pain or some affect produced upon the body. With this acceptation I will proceed to inquire into its seat.

Doctor Blumenbach in his treatise on this subject does little for it when compared to the rest of his works. In his physiology (vol. 1st) page 215. He says "the nerves are peculiarly subservient to sensation, whatever sensible impressions made on the body, they like active heralds convey and announce to the sensorium and then give rise to perception." This certainly cannot

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be true; for if the nerves were peculiarly subservient to sensation, the application of the agent producing it, must be to the nerve. It is physically impossible to produce sensation without the application of the agent to its seat. This being true one question immediately presents itself viz, whether the system is entirely made up of nerves or not? Where an anatomist in the world that would say yes? I presume not one. Then I assert the position taken by the illustrious author is false.

There is not one part of the system which possesses vitality, that does not also possess sensation. The sharpest, pointed instrument cannot be applied to the smallest portion of muscular fibre without producing sensation. If the nerves were its sole organs, the instrument certainly must be applied to the nerve in order to

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produce sensation. I believe that sensation is not confined to any particular part of the body; for there is not one part without it. Tendons and ligaments while in the sound state are possessed of little or no sensation but in the diseased are very painful and susceptible of impressions. I would ask, in this case whether we are to attribute the pain and susceptibility to impressions in the diseased state to the nerves? If so, I must then ask, why they possess so little sensation in a healthy state? Instances are recorded where the tendo achillis has been fractured without producing pain. Notwithstanding the ordinary insensibility of these parts, it was reported by Mr. Bichat, that several animals who seemed to suffer no pain from cutting, puncturing or corroding the ligaments of their joints, appeared to be in great agony when

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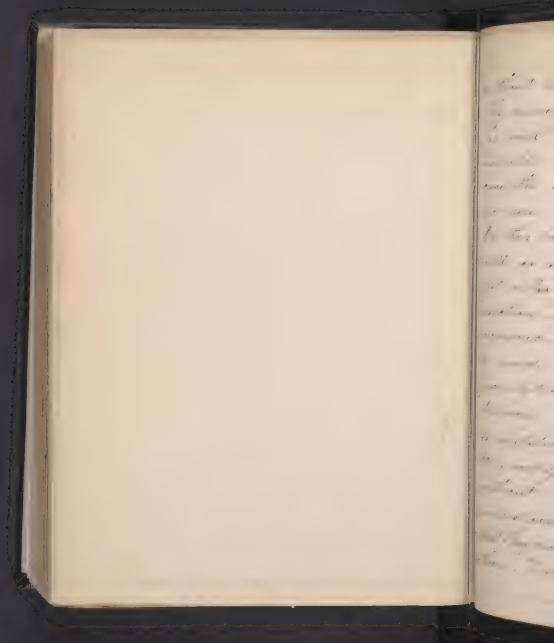
these facts were naturally at least admitted
and he assumes this to be the case, when
all the nerves which passed over the in-
struments, and could not have been affected
in the passage, were not injured. He assumes
for this the pain which sometimes occurs
instantaneously in strains, in the reduction
of luxations, and in other emergency, prognosis.
From this he concludes that the nerves are not in-
jured in a strain of a luxation, but that

the violence of a violent effort, strains and is
the cause of the power of transmission from
the nerves. When the violence is such as to
wound a ligament the nerves become the
office of the nerves, the supply and commence
to the brain where the sense is felt in an
immediate transit into the sense organs
through the same medium to the
brain and out.

In paroxysms it is not either the nerves

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muscles that are affected in the same
manner. The muscles have these conditions
in consequence of an affection of the nerve,
as it soon as the nerve is affected the brain
within the will from the brain to the
muscle motion and sensation is lost.
It can be said we do not know that it is
the nerve that is affected in "palsy", but
yet we do not know it is a fact but
we know from anatomy we shall
not mistake a movement in "paralysis"
it is not then of the nerve. We must know
that in a palsy he has around a nerve
given to a muscle, the motion of that mus-
cle will be obstructed and in consequence
the palsy motion will be restricted
while the palsy is applied we are by
no means deprived of motion, but when
it is changed to cure the muscle at that
time, we have the application of the palsy



without being able to direct a motion.
The same thing is true of the lower
limbs, we are insensible of what
muscles are moved at the same time. In this
case the control of the brain is not impaired
we are the muscles deprived of their vitality
for this cause derange the 'basis' for we can
will as strong at the time as at any time
but without being able to direct a single
motion, insensibility of the nerve being
impaired at its junctions. It may be
be said that there is no sensation in a
paralyzed limb, but in this case we do
be sure. The reason, for wherever there
is irritation there must also be sensation.
It is impossible to produce the former
without the latter. I wish not to be
understood that, there are supranumerary
sensations which are necessarily produced by each
other. For I believe sensations of pain are

[Faint handwritten notes, mostly illegible]

then, produced by the want of irritation, so
in all cases of "cramp pains"

the brain in its action on the motor
to other parts of the body, but one action
to force has lost its sensation and re-
tained its power of motion. Here the
irritation must have been in the motor
to the nerve had been affected. The
will could not have been conveyed from
the brain to the muscle, which is inde-
terminable except as far as its action.

If we cannot see where one part of the
body sends the motion where the pain
is we shall receive it altogether. Part
with that too in the spot where the in-
jury was inflicted. But a strong sensation
will not be the same. If the sensation was
communicated to the brain, we should have the pain
travelling down the motor, but through
the whole course of the nerve to the brain;

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but instead of that, we have it continued to the
last where the injury was inflicted.

It now seems to be more than
sufficiently intentioned upon, as compared to
some I have attempted to have at the last
of the last or so, and I have intended
to have written.

There are now few muskets in the world.
Since theologists have taken from
under the power of the will, and have
been to have the most spiritual to be.
The action of the heart the double of the
the intention and then of the intention of the
one and a kind of that great agent in our
heart, I mean the will. In this I have
attempted to restore them to their proper
place and to show that since then a great
power in the will has been and still is
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The same is likewise evident that the
action of the heart and arteries is habitually
in the stimulus in the blood contained in it.
The former is habitually such that the unit has
no power over it. If the blood acted
as a stimulus to the heart and arteries, their
action would be in a just ratio with
the quantity then contained. If we gave a
dose of wine or brandy the action of the heart
and arteries would be increased, and in proportion
as the stimulus is diminished the force
and action will also be diminished.
The effect of stimulus on the system after
being used for some time, gradually loses
that effect which it first had. I must have
been some time with the late Dr. Rush in
raising stimulus on credit, and in the blood was
the stimulus retained in proportion to the amount
it was diminished. The frequency of the
pulse would be diminished, but this is



not the case, for as the animal is bleeding to death, the frequency of the pulse is increased. Here then must be some other agent than the stimulus of the blood or power of habit. What is it? I answer, we have a greater will to protract life than any other thing in nature. As the action of the heart is indispensable in the circulation, the will in order to keep it up, acts with greater force on the heart causing it to contract and throw out the small portion of blood contained to support life. Perfectly analogous to the operations of the will on the heart, is that of every other agent in motion. For by their long continued application, we gradually become less conscious of their operation, although they continue to keep up their action as vigorously as ever. The motions of the diaphragm are kept up in the same way. Doctor Darwin places this under his head of associate

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motion, but this is another error too. For it is as much under the power of the will as any other muscle. We can suspend its action at pleasure. But it may be said its action was suspended in consequence of the suspension of respiration; or that it was in consequence of a suspension of the action of the lungs. If so, I must ask why does not respiration go on when there is a ligature around the phrenic nerve? The reason evidently is, because the will is cut off from the diaphragm by the ligature. If it was from the association the action was kept up, the ligature would not affect it; because the action of the lungs would be sufficient for that purpose.

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